February 16, 2010 1:24:49 PM

Page 1

Item ID:

D212-664-101

Accept

Setup Start

Stop



Revision ID:

Crosstube Fwd Item Name:

2/16/10 Start Date:

Start Oty: 1.00

Required Date: 3/02/10

Req'd Qty: 1.00



Cust Item ID:

Customer:

Reference:

Date: 16-2-16

Tooling:

Date:

Run

Start

Stop



Approvals:

Process Plan:

Date:

SPC (Y/N):

Date:



Sequence ID/ Work Center ID Operation Description Set Up/ Run Hours Draw Number

Draw Plan Rev.

Code

Accept Qty

Reject Reject Number Qty

Insp.

Stamp

Draw Nbr

Revision Nbr

Rev D D212-664-141

OC:

100

Document Control

DOCUMENT CONTROL

Memo

0.00

0.00

Photocopy bluefile and create labels as per PPP D212-664-101 CHG003

DI EL 10/03/18

110

DC

Packaging

Pick Kit

Packaging

Memo

0.00 0.00

Packaging

120

CNC Bend 2

CNC Alpha 160 Bender

Memo

0.00

0.00

Bend tube as per Dwg D212-664-141 using CNC bender program 212-fw and

Folio FT015

BENDING MACHINE - CROSSTUBES

Dart Aerospa	ce Ltd	
--------------	--------	--

W/O:			. V	VORK ORDER CHAN	GES				0.0
DATE	STEP	PRO	PROCEDURE CHANGE			Date	ate Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
					ā		self o		13
				25.				*	
Part No		PAR #:							
Resolution: Disposition:				on: QA: N/C Closed: Date:					
NCR:		V	VORK OR	DER NON-CONFORM	IANCE (NCI	3)			
DATE	STEP	Description of NC	Description of NC Correct		Verification Approval App			Approval	
DAIL	SILF	Section A	Initial Chief Eng	Action Description Chief Eng	Sign Date	Section		Chief Eng	QC Inspector
					91				
1		- K				- 1 1 2			
1			81			-		2	

NOTE: Date & initial all entries

February 16, 2010 1:24:49 PM

	ID:

D212-664-101

Revision ID:

Item Name:

Crosstube Fwd

Start Date:

Required Date: 3/02/10

2/16/10

OC:

Start Qty: 1.00

Req'd Qty: 1.00



Accept



Setup Start

Stop





Cust Item ID: Customer:

Reference:

Approvals:

Process Plan:

Date: Date: Tooling:

SPC (Y/N):

Date: Date:

Start



Stop

Sequence ID/ Work Center ID

QC

Operation Description

OC15- Crosstube Dimensional Check

Memo

Set Up/ Run Hours

0.00

0.00

0.00

Draw Number

Draw Plan Code Qty Rev.

Reject Accept Qty

Run

Reject Number

Insp. Stamp

Quality Control

Crosstubes Crosstubes

Crosstubes

Memo

0.00

1-Drill pilot holes in tube as per Dwg D212-664-141 using drill Jig DT8548 &

2-Ream hole to finish size in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549. Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes.

3-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-141

4-Deburr & Inspect for surface damage. Repair damage within limits as per-Dwg D212-664-141

MD-03-0

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February 16, 2010 1:24:49 PM



Page 3

Item ID:

D212-664-101

Accept

Setup Start

Revision ID:

Crosstube Fwd

Item Name: Start Date:

2/16/10

Start Oty: 1.00

Required Date: 3/02/10

Req'd Qty: 1.00



Cust Item ID: Customer:

Reference:

Approvals:

Process Plan:

OC:

Date:

Date:

Tooling:

SPC (Y/N):

Date: Date:

Run

Start

Stop



Stop

Sequence ID/ Work Center ID

150

HandFXtube

Hand Finishing Crosstubes

Operation Description

Crosstubes Chemical Conversion

Memo

Memo

Set Up/ **Run Hours**

0.00

Draw Number

Draw Rev.

Plan

Code

Accept Qty

Reject Qty

Reject Insp. · AWM 10-3-1) Number Stamp

Chemical Conversion Coat within 24 hours of bending and drilling

160

Quality Control

QC5- Inspect part completeness to step on W/O

170

Outsource2

Outsource process - NDT

Outsource process - NDT per QSI038 4.1

0.00

0.00

Memo

Liquid Penetrant Inspection as per QSI 038 Issue P/O: 11477 LPI as per ASTM 1417 Level 2

Attach copy of NDT results to work order

CX 10/3/11 0

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Page 4

Item ID:

D212-664-101

Accept

Setup Start



Revision ID:

Crosstube Fwd Item Name:

Start Date: 2/16/10 Required Date: 3/02/10

Start Qty: 1.00

Req'd Qty: 1.00

Cust Item ID: Customer:

Draw

Number

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start

Stop



QC:

Date:

SPC (Y/N):

Set Up/

Date:

Draw

Rev.

Stop

Reject

Qty

Number Stamp

Insp.

Reject

Sequence ID/ Work Center ID

Packaging

Packaging

Operation Description

Receive & Inspect for Damage & Mat'l Certs

Packaging

Memo

Run Hours 0.00

0.00

Ensure copy of NDT results attached to work order.

190

QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

0 10/03/12

Memo

0.00

Inspect for damage & ensure results are as per Dwg D212-664-141

Qty

Accept

Plan

Code

CX 10/3/11

197		
, , ,		

February 16, 2010 1:24:50 PM



Page 5

Item ID:

D212-664-101

Accept

Setup Start

Revision ID:

Item Name:

Crosstube Fwd

Process Plan:

Start Date:

Reference:

Approvals:

2/16/10

QC:

Start Qty: 1.00

Required Date: 3/02/10

Reg'd Oty: 1.00

Cust Item ID: Customer:

Draw

Number

Plan

Code

Start

Reject

Qty

Run

Stop

Number Stamp

Insp.

Date: Date:

Draw

Rev.

Stop

ZT 10-07-16

Reject

Sequence ID/ Work Center ID

200

SprayPaint Spray Painting Operation Description

Spray Painting per QSI005 4.2

Memo

SprayPaint

Set Up/ Run Hours

Tooling:

SPC (Y/N):

0.00

0.00

1-Prime inside and outside crosstube as per QSI 005 4.2 2-Paint outside crosstube with White Imron as per QSI 005 4.2

PRIME:

Start Time: \6 Fininsh Time: 11 00

Date:

Date:

PAINT:

Start Time: 3 Finish Time: 4 00

210

Quality Control

QC14- Inspect Spray Paint

0.00

0.00

Memo

Then, Wrap in plastic bag to protect from scratches

Accept

Qty

*		

February 16, 2010 1:24:50 PM



Page 6

Item ID:

D212-664-101

Revision ID:

Item Name:

Crosstube Fwd

Start Date: Required Date: 3/02/10

2/16/10

QC:

Start Qty: 1.00 Req'd Qty: 1.00

Accept



Setup

Start

Stop



Reference:

Approvals:

Process Plan:

Date:

Date:

Tooling:

SPC (Y/N):

Set Up/

Run Hours

Date:

Cust Item ID:

Customer:

Draw

Number

Date:

Draw

Rev.

Plan

Code

Run

Start

Stop

Reject

Number

Reject

10

Qty



Insp.

Stamp

Sequence ID/ Work Center ID

220

Crosstubes Crosstubes

Crosstubes

Operation

Description

0.00

0.00

1- Lightly scuff the bonded area using a 320 grit sand paper and clean the area with 41058 wash 'n' wipe

2-Install supports with magnobond as per QSI 015 Adhere for for 12 Hrs A/R 6398 Magnobond Batch: 110417 exp:01/2011

Torque: ml 10/03/18 0

QC5- Inspect part completeness to step on W/O

230

Quality Control

Memo

Accept

Qty

240

Packaging

Packaging

Pick Kit

Memo

0.00

0.00

Cemple Co

February 16, 2010 1:24:50 PM



Page 7

Item ID:

D212-664-101

Revision ID:

Item Name:

Crosstube Fwd

Start Date:

Required Date: 3/02/10

2/16/10

OC:

Req'd Qty: 1.00

Start Qty: 1.00

Reference:

Accept



Setup Start

Stop



Cust Item ID: Customer:

Approvals:

Process Plan:

Date:

Date:

Tooling:

SPC (Y/N):

Date: Date: Run Start



Stop

Sequence ID/ Work Center ID

250

Quality Control

Operation Description

QC4- 100% Inspect kits for completeness

0.00

0.00

Set Up/ Run Hours

Draw Number Draw Plan Rev. Code

Accept Otv

Reject Qty

Reject Number Stamp

Insp.

260 Packaging

Packaging

Packaging

Memo

Memo

Identify and pack for shipping as per PPP D212-664-101

10-3- 18 Sf

270

Quality Control

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

10/03/24 A MF 10-3-18

	The state of the s		
190			
		*	
	No.		
24 4 4			

February 16, 2010 1:24:54 PM

Work Order ID: 56221

Parent Item: D212-664-101

Parent Item Name: Crosstube Fwd

Comments:

IPP Rev:E□04.02.16□Reformat□KJ/DS

IPP Rev:F 06-03-29 Remove Coments on Pick List JLM

IPP Rev:G 07-04-30 As per Rev C



Start Date: 2/16/10

Start Qty: 1.00

Required Date: 3/02/10

Required Qty: 1,00

Component	Item	ID/
D212-664 10		

Replacement Mfg/

Manufactured

Bin Primary Last

Route 110

Unit of Each

Qty on 3.0000

Remaining 1.0000

Date

Status

Page 1



Crosstube Turning Detail

No

Loc Qty

Loc Code

10-03-01

**	arenouse
	Location

Main Warehouse

FG

54284 54501 55630

46465

53775

3

Each

123.6966 4.2105

D3595-063-450

Manufactured



RUBBER CUSHION

Warehouse Loc Qty Loc Code Location Main Warehouse LG 18,72767369 52447 18.7276737 Main Warehouse ST 104.9689 38959 43210 2.59

0.3789

100

230

February 16, 2010 1:24:54 PM

Page 2

Work Order ID: 56221

Parent Item:

D212-664-101

Parent Item Name: Crosstube Fwd

Comments:

IPP Rev:E□04.02.16□Reformat□KJ/DS

IPP Rev:F 06-03-29 Remove Coments on Pick List JLM As per Rev C

IPP Rev:G 07-04-30



Last

113282

Start Date: 2/16/10

Start Qty: 1.00

Required Date: 3/02/10

Required Qty: 1.00

Component Item ID/ MS21920-25

Replacement Mfg/

Purchased

No

Bin Primary

Route 220

Unit of Each

Qty on

Remaining 184.0000 4.0000

Qty

Date

Status

Clamp(per MIL-DTL-8783C)

Warehouse	Loc Qty	Loc Code
Location		
Main Warehouse		
CA	25	
113744	25	
Main Warehouse		
ST	159	
107456	2	

107456 108111 3 108975 17 109181 42 109644 111282 111429 112495 112919 25

50

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Series 1			
11116			
17.7			
EUR -			
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MLT.			
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February 16, 2010 1:24:54 PM

Page 3

Work Order ID: 56221

Parent Item:

D212-664-101

Parent Item Name: Crosstube Fwd

Comments:

IPP Rev:E 04.02.16 Reformat KJ/DS

IPP Rev:F 06-03-29

Remove Coments on Pick List JLM

IPP Rev:G 07-04-30 As per Rev C



Start Date: 2/16/10

Required Date: 3/02/10

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ D2893-1 2.75 Support	Replacement	Mfg/ Manufactured	Bin No	Primary	Last	Route 220	Unit of Each	Qty on 54.0000	Remaining 2,0000	Qty	Date	Status
				Warehous Locati Main Ware	ion	Loc	<u>Qtv</u>	Loc Code			m 1a	03 17

ST 54 25657 47109 51775 17 53125 19 53340 10

240

D3428-1 Placard

Manufactured

Each 21.0000

1.0000

Warehouse Loc Qty Loc Code Location Main Warehouse ST096 21 50790 55565 20

Capper O

55568

The state of the s		
lsa.		
No.		

February 16, 2010 1:24:54 PM

Work Order ID: 56221

Parent Item:

D212-664-101

Parent Item Name: Crosstube Fwd

Comments:

IPP Rev:E 04.02.16 Reformat KJ/DS

IPP Rev:F 06-03-29 IPP Rev:G 07-04-30

Remove Coments on Pick List JLM

As per Rev C



Last

Start Date: 2/16/10

Start Qty: 1.00

Required Date: 3/02/10

Required Qty: 1.00

Component Item ID/ AN6-35A

Replacement Mfg/

Purchased

Bin No

Primary

Route 240

Unit of Each

Qty on

Loc Code

Remaining 64.0000 4.0000

Qty

Date

Status

Page 4

Warehouse Location

Main Warehouse ST

112314

112805 113422 64 14 20 30

Loc Oty

95

2

42

50

Loc Qty

M11280524

AN6-36A

Purchased

No

Warehouse

Location Main Warehouse ST

> 109632 110382

> 112314

113121

240

Each

95.0000 4.0000

Loc Code

m/12314

	1.			
6		*		

February 16, 2010 1:24:54 PM

Page 5

Work Order ID: 56221

Parent Item:

D212-664-101

Parent Item Name: Crosstube Fwd

Comments:

IPP Rev:E□04.02.16□Reformat□KJ/DS

IPP Rev:F 06-03-29

Remove Coments on Pick List JLM

IPP Rev:G 07-04-30 As per Rev C



Start Date: 2/16/10

Start Qty: 1.00

Required Date: 3/02/10

Required Qty: 1.00

Component Item ID/	Repl
MS21042L6	
THE REAL PROPERTY OF THE PARTY NAMED AND ADDRESS.	

lacement Mfg/

Purchased

Bin Primary No

Last

Route 240

Unit of Each

Loc Code

Qty on 388.0000 6.0000

Remaining

Qty

Date

Status

Ce 193/18

>					

Nut

W	arehouse
	Location
M	ain Warahaw

Main Warehouse ST

> 105077 110002 111578

22 5 361 240 Each

Loc Qty

388

433.0000 18.0000



Washer



No



Main Warehouse ST

Location

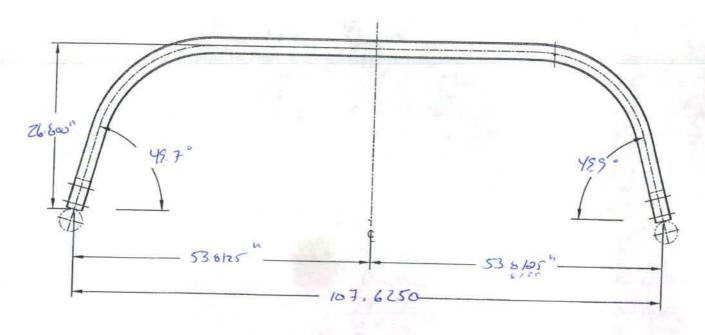
Warehouse

112314 112828 113149

Loc Code

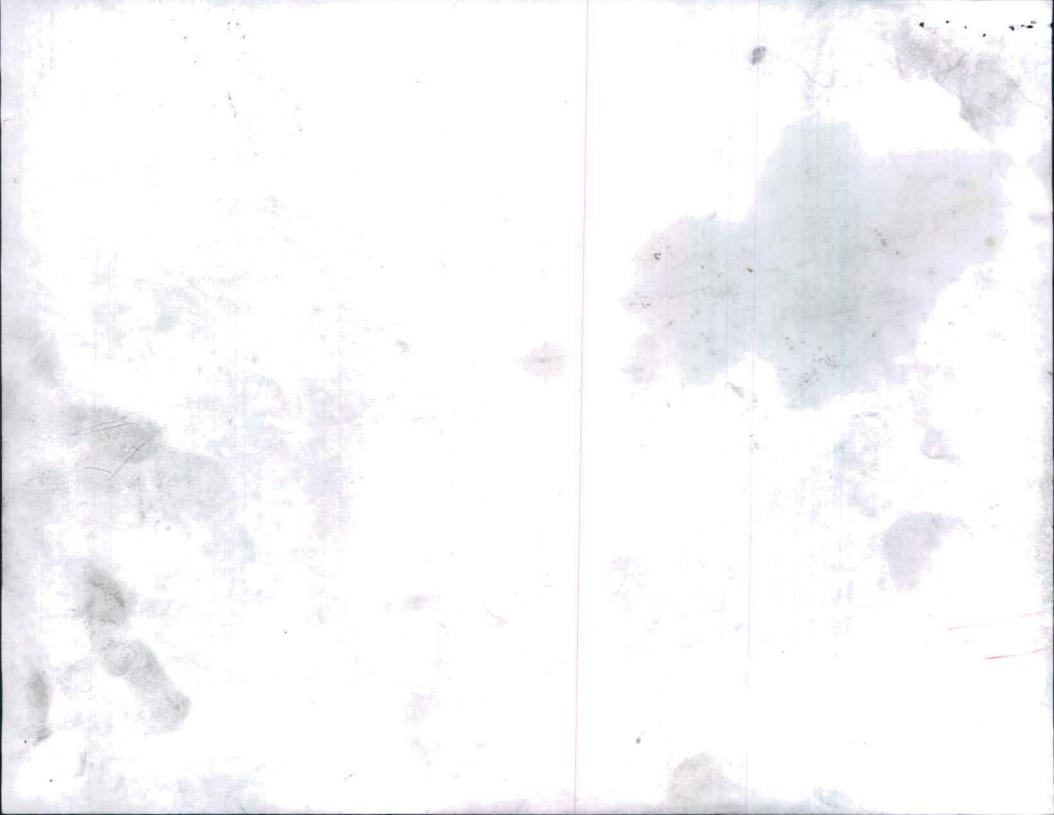
DART AEROSPACE LTD		Work Order:	56221
Description: Crosstube High Fwd (205/212/412)	27	Part Number:	D212-664-101
Inspection Dwg: D212-664-141 Rev: 2 V	/	The state of the s	Page 1 of 1

Required Dimension	Min	Max
Height	26.79	27.05
1/2 Span	53.59	53.85
Angle	49	52
Total Span	107.18	107.7



	Comments
QC15 Inspection Date	18.

Rev	Date	Change	12 :	
Δ	07.02.06	- 9-	Revised by	Approved
^		New Issue	KJ/JM	1
В	07.05.31	Dimensions updated per Dwg Rev C	1.0	//
		- Francisco	KJ/JM	m



Item	Qty -141	Qty -141B	Part Number	Description
1	Х		D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2		X	D212-664-141B	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
3	1	1	D6005-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

1) MATERIAL: MANUFACTURED FROM D6005-128 FINISHED LENGTH = 126.514±0.020

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2 PAINT OUTSIDE PER DART QSI 005 4.2

TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

UNITS: INCHES UNLESS OTHERWISE NOTED.

BREAK SHARP EDGES: 0.005 TO 0.010 MAX.

IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS

7) WEIGHT: D212-664-141 = 33.6 lbs (PER IIN-D212-664) D212-664-141B = 33.6 lbs (PER IIN-D212-664)

PART IS SYMMETRIC ABOUT CENTERLINE.

RUN CUTTER OFF PART, BLEND OUT EDGE LONGITUDINALY, TRANSITION SHOULD BE SMOOTH.

10) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.

11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.

12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.

13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE

14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

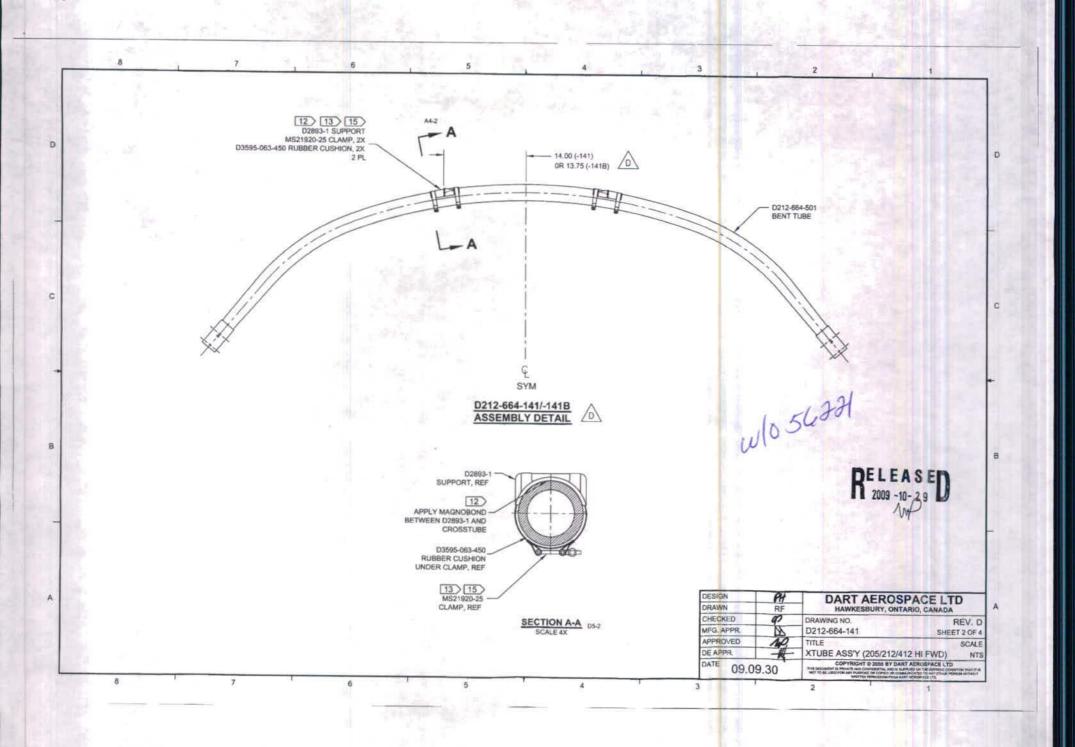
SHOP COP RETURN TO ENGINEERING UNCONTROLLED COPY SUBJECT TO AMENDMENT WITHOUT NOTICE NO. 36321 BJCO-2-12

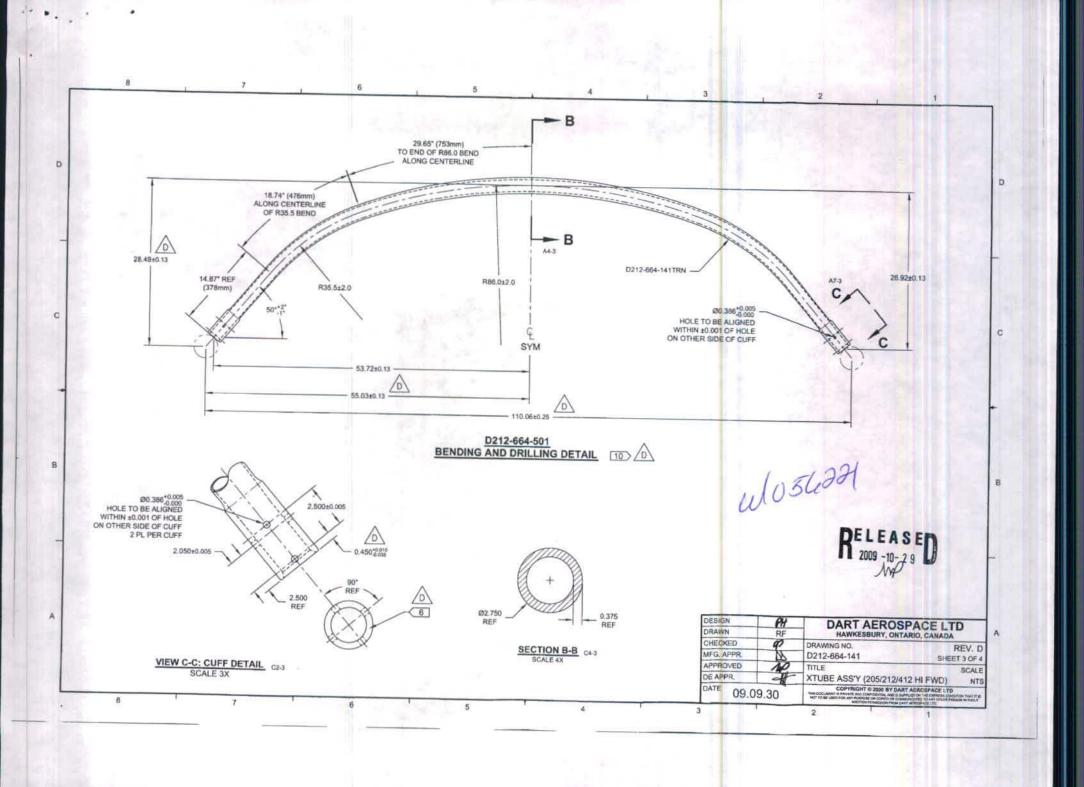
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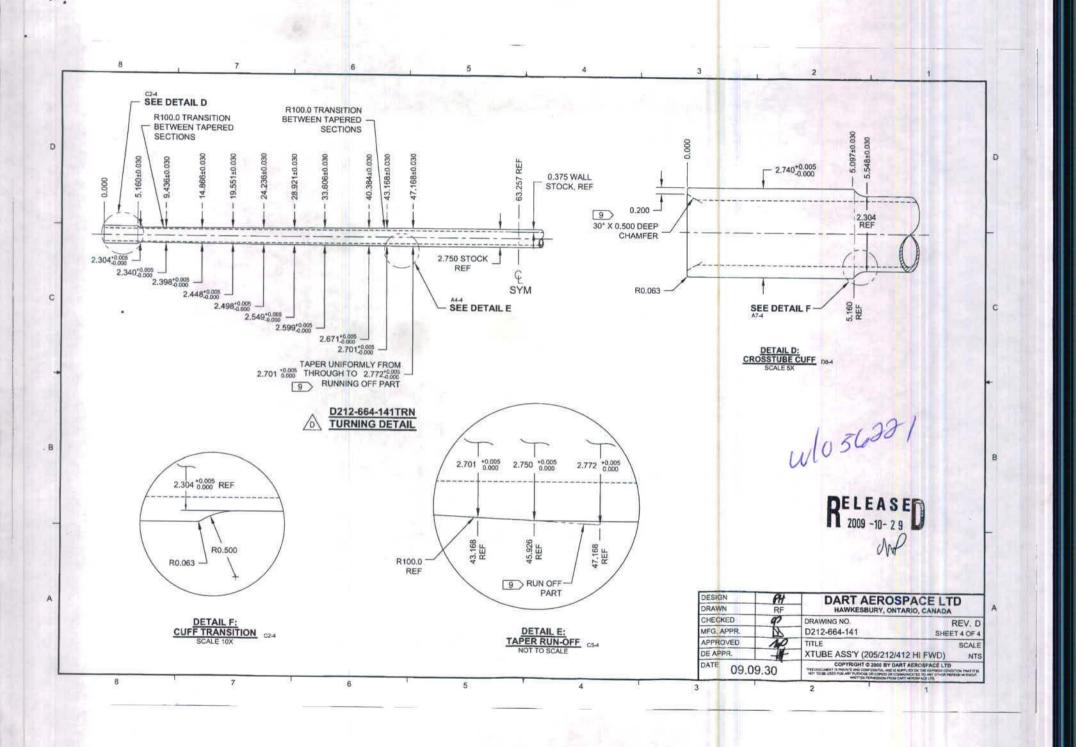
D	D. REFORMAT/REVISE GENERAL NOTES/PART LIST: REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -1418 (ZN 84-2, 04-2); REMOVED REF & ADD TOLERANCES (ZN 84-3, C8-3, C8-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET.			RF	09.09.30	
С	REMOVE 6398, CL	-851 ABR	ASION STRIP; ADD MAGNOBOND EVERSE CLAMPS	PH	07.03.08	
В			COMPATABILITY WITH BHT/AA	РН	05.02.04	
A	NEW ISS	NEW ISSUE		PH	00.12.12	
REV.			DESCRIPTION	BY	DATE	
DESIGN PH DRAWN RF			DART AEROSPA HAWKESBURY, ONTARK	CE	LTD	
MFG, APPR,		ab A	DRAWING NO. D212-664-141	REV. D SHEET 1 OF 4		
DE APPR.		10	TITLE XTUBE ASSY (205/212/412)	SCALE 205/212/412 HI FWD) NTS		
09.09.30		30	COPYRIGHT © 2000 BY DART AEL SELDOCUMENT IS PRIVATE AND DESPENSAL AND IS SUPPLIED NOT TO BE USED FOR ANY PURPLIED OF CORPE OF COMMUNICATION WITTER PRIMARION PRIMARION PRIMARION FOR THE	ROSPACE OF THE OPPOSITE	LTD	

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DATE ACUSES ACUSES OF ACUS	ACUREN	
DATE DATE DATE DATE DATE DATE DATE DATE		PAGE / OF /
TITISTINON ADJESS TO SPECIAL STATE POWNO NO. INTERNAL STATE INTERNAL STAT		
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ACCEPTAGE STU. ACCEPTAGE STU.	ATTENTION LINDA/CHANTEL	111100
ACCEPTAGE STU. ACCEPTAGE STU.	ADDRESS 1270 4BELDEEN ST.	
PROJECT TEM(S) EXAMINED PROCEDURE NO. LT-002 REV/DATE STATUS FS STEEL MATERIAL ALL DUL ALLOCATIONNESS COOPE STATUS FS STEEL MATERIAL ALL DUL ALLOCATIONNESS STEEL ALLOCATIONNESS METHOD STATUS FS STEEL MATERIAL ALL DUL ALLOCATIONNESS STEEL ALLOCATIONNESS METHOD STATUS FS STEEL MANUEL DUL STATUS FS STEEL STATUS FS STATUS FS STEEL CLEAN FS STATUS STATUS FS STEEL CLEAN FS STATUS FS STEEL CLEAN FS STATUS FS STATUS FS STEEL CLEAN FS STATUS FS STA	MAUKESBURY ON KOM IK	
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TEMOS DESCRIPTION PROCEDURE NO. LT-00 REV./DATE PRETITO. STANCES S STEEL MATERIA ALL DIES ALLEVA, THOMRSS SCOPE BETTO THAT IS THE CONTROL OF THE STEEL ALLEVA, THOMRSS SCOPE BETTO THAT IS THE CONTROL OF THE STEEL ALLEVA, THOMRSS SCOPE BETTO THAT IS THE CONTROL OF THE STEEL ALLEVA, THOMRSS SCOPE BETTO THAT IS THOMPS THE STEEL ALLEVA, THOMRSS BLACK LIGHT BIN /6 / 5 / 3 OUTPUT > 1000 i. Wilder 2 for STEEL ALLEVA, THOMRSS BLACK LIGHT BIN /6 / 5 / 3 OUTPUT > 1000 i. Wilder 2 for STEEL ALLEVA, THOMPS THE STEEL ALLEVA, THOMRS THE STEEL ALLEVA, THOMPS THE STEEL ALLEVA, THE STEEL ALLEVA, THOMPS THE STEEL ALLEVA, THOMPS THE STEEL ALLEVA, THE STEEL ALLE	PROJECT F. P. I. O.V.	closs TuBES.
DOB DESCRIPTION		
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